

at the bases of the 1st and 2nd fingers, while 3rd and 4th fingers help in gripping.

In captivity, they have the peculiar habit of resting all together in a jumbled heap.

Just after hatching tadpoles were collected in large numbers from temporary rain water pools in various localities in Jaipur dist. The tadpoles were small, ranging from 3-4 mm in length. Head and body flat and oval in shape, snout rounded, nostrils small and circular and situated approximately half way between the eye and the tip of snout. Gill situated at some considerable distance behind the eye.

The mouth is terminal as compared to the tadpoles of *Bufo stomaticus*, where it is ventral. The dental formula is 1:1+1/3, the lower row on the upper lip is clearly interrupted. Teeth small and black, very small and feebly developed on the 3rd row of the lower lip. The lower beak almost V-shaped, upper beak convex and minutely denticulated.

Tail long, twice as long as the head and the body, bluntly pointed and has well developed dorsal and ventral fins. The dorsal fin membrane starts from the posterior extremity of the body and rises gradually. The tadpoles are bottom dwellers.

Colour dorsally dark, mottled with green and red circular patches. Dark pigments are also present on the axial fleshy region of the tail. Ventral surface colourless. Forearms, hand, fingers, thigh, shank, tarsus, foot and toes are barred. A fully grown tadpole measures 30-40 mm.

Development is rapid, being completed within 20-24 days. Metamorphosed toadlets measure approximately 10 mm from snout to vent.

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19. FOUR NEW RECORDS AND CHECKLIST OF AMPHIBIANS FROM MAHARASHTRA

The amphibian fauna of Maharashtra has been reported by Daniel (1974) in the Maharashtra State Gazetteer. He has listed 22 species. In 1976, Yazdani and Mahabal reported 11 species from Pune. Later, Ravichandran and Pillai (1990), who worked on the amphibian collection at the Western Regional Station, Zoological Survey of India, Pune raised the number of species from Maharashtra to twenty-nine.

In August, 1995 during an amphibian survey along the Western Ghats in south Maharashtra, I recorded 17 species including four, namely *Limnonectes brevipalmata*, *Rana curtipes*, *Philautus leucorhinus* and *Rhacophorus malabaricus*, which were not reported hitherto from Maharashtra. The details of collection, morphometry and field notes of the newly recorded species are summarized below.

Limnonectes brevipalmata (Peters 1871)

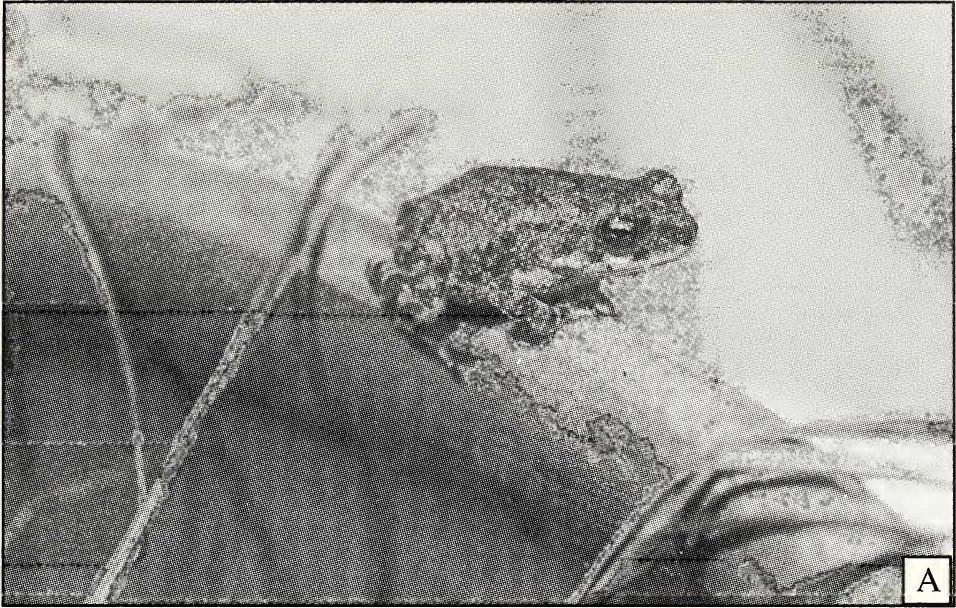
Material: (1) 1 exp. BNHS 2989; Koyna (550 m), Satara dist., Maharashtra; 16.viii.1995. (2) 4 exp. BNHS 3025, 3039-3041; Amboli (750 m), Sindhudurg dist., Maharashtra; 26.viii.1995.

Measurements: Snout-vent length 46.30-53.60 mm; Head length 15.30-16.95 mm; Head width 15.60-17.45 mm; Tibia length 26.65-30.63 mm. All the specimens with vertebral streak.

Field notes: The individual from Koyna was picked up from the short-grass patch in a nursery, whereas the specimens from Amboli were collected from a stone heap in the middle of a big man-made tank with 15 cm of water in semi-evergreen forest.

Rana curtipes Jerdon 1853

Material: 1 exp. BNHS 3038; Amboli



The green toad *Bufo viridis* recorded for the first time in Jaipur dist. Rajasthan.
A. Lateral view; B. Dorsal view.

(750 m), Sindhudurg dist., Maharashtra; 26.viii.1995.

Measurements: Snout-vent length 60.15 mm; Head length 25.40 mm; Head width 25.1 mm; Tibia length 28.70 mm.

Field notes: The specimen was collected from the damp cement floor of a man-made tank with decayed leaf litter in semi-evergreen forest.

Philautus leucorhinus

(Lichtenstein and Martens 1856)

Material: (1) 2 exp. (2 males); BNHS 2998-2999; Koyna (550 m), Satara dist., Maharashtra; 17.viii.1995. (2) 3 exp. (3 males); BNHS 3013-3015; Kalamawadi (650 m) 10 km from Radhanagari, Kolhapur dist., Maharashtra; 22.viii.1995. (3) 2 exp. (1 male, 1 female); BNHS 3021-3022; Amboli (750 m), Sindhudurg dist., Maharashtra; 25.viii.1995.

Measurements: Snout-vent length of adult female 39.90 mm; Head length 12.05 mm; Head width 12.6 mm; Tibia length 17.5 mm. Snout-vent length of adult males 29.5 mm; Head length 10.15-11.3 mm; Head width 11.3-12.5 mm; Tibia length 15.3-16.5 mm.

Field notes: All the specimens, except one, were collected from the branches and leaves of shrubs growing to a height of 2 m. One individual was taken from a tree trunk, 1 m from the ground. Frogs of this species were heard calling in chorus after sunset in the forest, along with the related species *Philautus bombayensis*, but these two species could be differentiated by their calls in the field. The male and female from Amboli were collected while they were in amplexus. The amplexus was axillary. The pair was kept in a jar to continue their mating. The female laid 58 whitish, spherical eggs which measured 2.5 mm in diameter.

Rhacophorus malabaricus Jerdon 1870

Material: 5 exp. BNHS 3042-3046; Amboli (750 m), Sindhudurg dist., Maharashtra;

26.viii.1995.

Measurements: Snout-vent length 55.6 to 63.1 mm; Head length 18.2-20.5 mm; Head width 14.45-20.4 mm; Tibia length 29.6-32.6 mm; width of toe pad 3.45-4.20 mm.

Field notes: All the frogs were collected in the night at 2010 h. from the branches of a tree, about 5 m above ground level, in semi-evergreen forest. The frogs were highly camouflaged among the colour and shape of the leaves. The tadpoles were found in the forelimb stage, in a man-made tank near the tree from where adult frogs were collected.

The distribution of *Limnonectes brevipalmata* and *Rana curtipes* has been described as Tamil Nadu, Kerala and Karnataka. The bush frog *Philautus leucorhinus* has been collected so far from Kerala, Karnataka and Goa, whereas the Malabar gliding frog *Rhacophorus malabaricus* has been recorded from Tamil Nadu, Kerala, Karnataka and Goa (Sekar 1991). There is no record of these four species from Maharashtra so far, and this is the first report.

Based on the two lists provided by Daniel (1974) and Yazdani and Mahabal (1976) and their work on the ZSI collection, Ravichandran and Pillai (1990) reported 29 species of amphibians from Maharashtra. However, the species list requires some addition and deletion.

Limnonectes syhadrensis, which was recorded from Nasik, Maharashtra was not included in the previous lists. *L. syhadrensis* described by Annandale (1919), was treated as one of the varieties of *Limnonectes limnocharis* (Boulenger 1920). For this reason, Daniel (1974) did not include it in the list of amphibia of Maharashtra. In 1974, Dubois separated this species from *L. limnocharis* (Frost 1985).

Though the Caecilian *Ichthyophis bombayensis* (Taylor 1960) was reported from Maharashtra by Dutta (1992), it was not recorded from Maharashtra in the present study. The species is known only from the type locality Waghai, Surat Dangs, in Gujarat (Frost 1985). With the available information and the results

of the present survey, an updated species list of the amphibian fauna of Maharashtra, comprising of 2 orders, 6 families, 17 genera and 34 species, has been prepared according to the new classification (Dutta 1992).

UPDATED SPECIES LIST OF AMPHIBIANS OF
MAHARASHTRA

ORDER: APODA

1. FAMILY: Ichthyophiidae Taylor 1968
1. Genus *Ichthyophis* Fitzinger 1826
1. *Ichthyophis subterrestris* Taylor 1960

2. FAMILY: Caeciliidae Gray 1825
2. Genus *Indotyphlus* Taylor 1960
2. *Indotyphlus battersbyi* Taylor 1960

ORDER: ANURA

3. FAMILY: Bufonidae Gray 1825
3. Genus *Ansonia* Stoliczka 1870
3. *Ansonia kamblei* Ravichandran 1992
4. Genus *Bufo* Laurenti 1758
4. *Bufo melanostictus* Schneider 1799
5. *Bufo beddomii* Günther 1875
6. *Bufo stomaticus* Lütken 1862
7. *Bufo parietalis* Boulenger 1882
8. *Bufo microtypanum* Boulenger 1882
9. *Bufo koynayensis* Soman 1963

4. FAMILY: Microhylidae Günther 1859
5. Genus *Microhyla* Tschudi 1838
10. *Microhyla ornata*
(Duméril and Bibron 1841)
11. *Microhyla rubra* (Jerdon 1854)
6. Genus *Uperodon* Duméril and Bibron 1841
12. *Uperodon globulosus* (Günther 1864)
7. Genus *Ramanella* Rao and Ramanna 1925
13. *Ramanella montana* (Jerdon 1854)
14. *Ramanella variegata* (Stoliczka 1872)

5. FAMILY: Ranidae Gray 1825
8. Genus *Euphlyctis* Fitzinger 1843
15. *Euphlyctis cyanophlyctis*

- (Schneider 1799)
16. *Euphlyctis hexadactylus* (Lesson 1834)
9. Genus *Hoplobatrachus*
17. *Hoplobatrachus tigerinus*
(Daudin 1803)
10. Genus *Limnonectes* Fitzinger 1843
18. *Limnonectes limnocharis*
(Boie in: Wiegmann 1835)
19. *Limnonectes brevipalmata* (Peters 1871)
20. *Limnonectes keralensis* Dubois 1890
21. *Limnonectes syhadrensis*
(Annandale 1919)
11. Genus *Indirana* Laurent 1986
22. *Indirana beddomii* (Günther 1875)
23. *Indirana leithii* (Boulenger 1888)
12. Genus *Rana* Linnaeus 1758
24. *Rana malabarica* Tschudi 1838
25. *Rana curtipes* Jerdon 1853
26. *Rana temporalis* (Günther 1864)
13. Genus *Tomopterna* Duméril and
Bibron 1841
27. *Tomopterna breviceps*
(Schneider 1799)
28. *Tomopterna rufescens* (Jerdon 1854)
14. Genus *Nyctibatrachus* Boulenger 1882
29. *Nyctibatrachus humayuni* Bhaduri
and Kripalani 1955

6. FAMILY: Rhacophoridae Hoffman 1932
15. Genus *Philautus* Gistel 1848
30. *Philautus glandulosus* (Jerdon 1853)
31. *Philautus leucorhinus*
(Lichtenstein and Martens 1856)
32. *Philautus bombayensis*
(Annandale 1919)
16. Genus *Polypedates* Tschudi 1838
33. *Polypedates maculatus* (Gray 1834)
17. Genus *Rhacophorus* Kuhl and
Van Hasselt 1822
34. *Rhacophorus malabaricus*
Jerdon 1870

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20. RANGE EXTENSION IN *UPERODON GLOBULOSUS* (GUNTHER 1864) IN ASSAM

Uperodon globulosus (Günther 1864) is a fossorial microhylid occurring in India and Bangladesh (Inger and Dutta 1986, Khan 1982). In India, it is distributed in Assam, West Bengal, Orissa, Maharashtra, Gujarat, Madhya Pradesh, Karnataka and Goa (Daniel 1963, Inger and Dutta 1986, Dutta 1997). In Assam, it was reported from Kamrup, Nalbari, Barpeta and Kokrajhar districts (Chanda 1994, Sengupta unpublished data).

On June 6, 1998 a pair of *Uperodon globulosus* were collected from Biswanath Plain (93° 25' E and 26° 45' N, Sonitpur dist., at 2015 h. from a low-lying temporary waterlogged grassland around a perennial pond. Both were mature females (SVL 6.7 and 6.9 cm). These

represent a range extension by ca. 135 km northeast, the previous easternmost point of distribution being Mandakata (91° 47' E, 26° 17' N) in Kamrup dist. In Assam, the species is found along the floodplain from Kokrajhar dist., upto Sonitpur dist., on the north bank of the Brahmaputra, and only a single record (Chanda 1994) — Jalukbari has been reported from the south bank.

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